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THE Permanent International Exhibition which it is proposed to open in Philadelphia in May, and for which the main building of the Centennial Exhibition was bought at a price of $250,000, has received a set-back from the decision of the United States Supreme Court — which might indeed have been anticipated, one would think — that the million and a half of dollars advanced by the General Government to the Centennial must be repaid before any thing can come to the original stockholders. The subscriptions to the permanent exhibition were nominally about $630,000, of which only $130,000 was in cash, the remaining half million being in Centennial stock at par. This stock was estimated at sixty per cent, which would have made the half-million really worth $300,000; but it is thought that after the decision of the court it will not be more than half that sum. The funds available therefore for the exhibition are diminished to about $280,000. The directors of the permanent exhibition are not disheartened however, and propose to increase their capital stock to $600,000, raising new subscriptions of Centennial stock and of cash, for payment for the building and for running expenses. They hope at least to have a working capital of fifty thousand dollars, over and above the price of the building, which they think will be enough for their needs.

THE success of such an exhibition as is announced is to be desired for the country's sake, and would be of peculiar advantage to a city where manufactures are so important as those of Philadelphia. The real value of it would of course be as a school of instruction to our manufacturers and workmen. It is said that the president of the new exhibition has been studying carefully the scheme of the Crystal Palace Exhibition at Sydenham. We have read a saying of Byron's, that when he would write a poetical romance he read all the others that he could find, so as to know what not to introduce into his own. It may be hoped that a similar forethought guards the president's study of that rather seedy establishment, which has degenerated into little else than a place of cheap popular amusement. It is to be hoped too, that the Philadelphia exhibition will be preserved from the danger of becoming a mere bazaar for the exhibition of wares on sale, a danger which besets all great exhibitions, and becomes serious when they are made permanent. The men who managed the exhibition of 1876 with so much judgment, propriety, and success may be expected to recognize and avoid these dangers.

THE burning of the Southern Hotel in St. Louis, and the death thereby of a dozen or so of its inhabitants, gives a new direction to the general anxiety aroused lately by the disasters in theatres, churches, and halls. Hotels are less inflammable than theatres and than some kinds of factories, but except these there is probably no class of buildings which is so apt to burn. It would probably be difficult to find a large hotel which has been occupied a dozen years that has not been on fire. Their only security is in the fact that there are always a good many people up and about in them, and that a fire is therefore usually discovered before it is too late to put it out. This safeguard however was delusive in the case at St. Louis, if we may believe the story that the mayor of Topeka, who had a lower room in the hotel, found smoke in it early in the evening, and having twice complained of it to no purpose changed his room and went confidingly to bed in the fourth story. We have seen no official statement of the origin of the fire; but the common belief, unopposed so far as we know, is that it caught in the lower story, and was carried up through the elevator-well to the upper story where it first declared itself.

OUR large hotels of this day have certainly become, as far as danger from their burning is concerned, as unsafe structures as could well be devised. Only in theatres and steamboats can people be said to be in greater peril. They are so enormous and costly that it requires good management to secure a satisfactory rent from them, and the added cost of making them fire-proof looks appalling. We doubt if there has ever been a serious attempt to make one of them fire-proof in this country, unless in the case of the new Palmer House in Chicago, in which some precaution of the sort was undertaken, with we know not what result. They are complicated structures, of great area, and five or six or more stories high, in one of which several hundreds of people sleep, crowded into the upper stories, since many of the lower rooms are used as parlors, and so complicated in plan that a lodger often has to find his way through a long labyrinth of passages before he gets to a stairway, which he seldom hits on the first trial. The luxurious habit of using elevators adds greatly to the danger; for people became unused to the stairways, and do not know where to find them, while for purposes of escape the elevator is a mockery. The stairways, floors, and partitions are very combustible and honeycombed with continuous hollow spaces, flues in which it is extremely difficult to trace the movement of fire, and through which it often travels unsuspected, to break out a long way from its starting-point. The elevator-wells themselves are lined with combustibles, and by their upward draught quickly carry the flames which come near them up through the whole height of the building, while their openings communicate them readily to every floor.

THE people of Cincinnati have been amusing themselves considerably of late over a quarrel between neighbors, which has some points of interest for architects. We have already mentioned the Emery Arcade which is building in Cincinnati. It, and the buildings which are connected with it, abut on, and enclose on two sides, a private yard in the rear of Mr. James Gilmore's house. The Messrs. Emery elected to open a series of windows overlooking Mr. Gilmore's yard, and apparently without awaiting the permission which it is customary to ask in such cases, set a row of bull's-eyes in their wall on the north side of it. To this Mr. Gilmore objected, but without effect till it was discovered that the Messrs. Emery's surveyor had indiscreetly advanced their wall an inch and a half over the north verge of Mr. Gilmore's lot. This brought them to terms, and they signed an agreement "to close and keep closed the circular windows now open on the north end of Gilmore's lot," in consideration of an agreement on Mr. Gilmore's part to waive his right to pull down so much of the wall as stood on his ground. This agreement secured, they continued their building, putting in the wall on the east of the yard a range of windows in the lower story, and above them a tier of bull's-eyes, one in each of six stories. They took good care this time, as may be supposed, to keep within their line, maintaining that since in the agreement no mention was made of windows on the east side, there was a tacit understanding that no objection should be made to them. Against this sharp practice Mr. Gilmore stoutly protested; and finding protestation of no avail, he built up a brick wall in front of the lower windows, and in front of the tier of bull's-eyes a half-round stone tower forty feet high, flattened against the wall, from the stages of which he could doubtless improve on their lesson by observing his enemies at leisure through the objectionable bull's-eyes. This, which they consider a breach of faith, has angered the

Messrs. Emery to that degree that they propose to sue Mr. Gilmore in damages to the amount of twenty thousand dollars for cutting off their light and air; and it has excited the people of Cincinnati to such admiration that the points from which Mr. Gilmore's tower can be seen are publicly advertised, 'tis said.

There appears to be no doubt that the report of Gens. Kurz, Gillmore, and Duane, on the foundations of the Washington Monument, has at last been presented to the Commission, and has declared that it will not do to finish the Monument as has been intended, the ground under it not being solid enough to make it safe. We presume that this will decide the matter, at least against the original design. It does not yet follow that it cannot be converted into something more creditable; but it is greatly to be hoped that no attempt will be made to do it without getting designs from the most capable persons that the country can furnish, and securing the careful judgment of well-qualified persons upon them. One suggestion which has been made, and which does not seem to promise well, is to set a colossal statue of Washington on the stump as it stands. We are at a loss to understand the indignation with which some newspapers which have tried the case to their own satisfaction hail the opinion of the distinguished engineers who have condemned the foundation. One Boston journal says naïvely, "Practical builders who have also made examinations, but who have no jobs to advance, say that the shaft can be built upon the present foundations."

The last touch of gilding has not long been laid on the Albert Memorial in London, when one Mr. Hills of South Kensington comes forward with a proposition to build another Crystal Palace to cover it up; and Mr. Bedborough, the architect of the marvellously ugly Westminster Aquarium, has brought out a design for the building which should cover it. It is intended to be of iron, copper, and glass; is to be in plan a central octagon two hundred feet in diameter, with four wings of twenty-seven by eighty feet on its cardinal faces. Over the central part is a dome of one hundred and thirty feet in diameter, its springing line one hundred and forty-five feet from the ground, and the lantern that crowns it rising to three hundred and forty feet. The design is said to be compact of clustered columns, gables, pinnacles, traceried spires, and "cuspated" arches. The centre is to shelter the Memorial, the four wings to contain gardens with trees and plants "representing the vegetable kingdoms of the four quarters of the globe." The Prince of Wales, we are told, "was graciously pleased to signify his approval of the scheme," — rather heedlessly, we should think. We had thought that the people of London, with the Royal Albert Hall before their eyes, must be tired of building huge and unprofitable buildings of questionable design in that neighborhood. Of the Memorial the *Saturday Review* says discreetly, "It is on account of its fine proportions and stately elevation that the monument has its chief claim to public admiration; and it is obvious that this aspect of it would be lost if it were shut up in an ugly glass case, so that it could only be seen in snatches." Moreover it was built, we believe, by general subscription and from public funds, and is now public property, and so not a subject, one would suppose, for the experiments of private projectors. That another architect should bring forward in the guise of protection a project for obscuring and belittling Sir Gilbert Scott's famous monument under his very nose, looks much like what we should call professional impertinence. We cannot believe that the project will be carried out.

The *Architect* quotes certain questions concerning fees that have been considered among the French architectural societies, and answers that have been given to them. How, it was asked, shall an architect fix his commission for a building for which his client has furnished the material? and how fix it when the work is executed by the client, who renders no account of cost to the architect? To these it was answered that the regular commission being five per cent (for work which costs over five thousand francs) on the value of both material and labor employed, the architect should, if the working accounts were given him, make up from them an estimate of material, or of material and labor if the client furnished both, and tax it. If no accounts were given him, he must make the best estimate he could, and charge upon that; and an extra fee should be charged for making the estimate, over and above the five per cent. It was suggested that the estimate might be furnished by another architect, a thing that would certainly seem to be desirable for avoidance of disputes. The decision agrees substantially with the usage recorded in the table of fees published by the American Institute of Architects, except that in that no provision is made concerning the architect's estimate. The *Société des Alpes Maritimes* has adopted a tariff which contains some special provisions. Small works, of a thousand francs in cost or less, are to be charged for by time. Commissions are to be seven per cent on cost up to five thousand francs; on costs above that, five per cent. This, taken literally as we find it stated, would mean on a cost of five thousand francs a fee of three hundred and fifty francs, on six thousand a fee of three hundred, which probably is not intended. For work done outside the commune in which the architect lives, the fees will be, up to five thousand francs, eight per cent; above that, six per cent. The rule is laid down which obtains here, though it is not here so well understood as it should be, that the commission is reckoned on the whole cost of the completed work, including paper-hanging, decorating, and gas-fitting. For partial services the fees are somewhat different from those to which we are accustomed, the division of work being different: thus, up to a cost of five thousand francs, for general plans and estimates (approximate) two per cent; for a complete design, plans, elevations, and sections, with estimates, two and one half per cent. Above five thousand francs the charge is one half per cent less.

ARCHITECTS' ESTIMATES.

One often hears complaint of the inaccuracy of estimates of the probable cost of work furnished by architects, and expressions of disappointment that they do not agree with the actual cost of execution, or sometimes even intimations that architects are in this respect incompetent for their duties. In view of this difficulty and the misunderstandings to which it gives rise, it is worth the while of architects to take some pains to make it understood what an estimate is, a matter on which it will be found, we think, that a good many false notions are current. From this question and the accusations that depend on it, we ought to separate the complaint which is also sometimes made, that houses built under the direction of architects are apt to cost more than the contract prices by reason of "extras." This, which we think is no more true, and probably less true, *cæteris paribus*, of houses built by architects than of others, depends on entirely different considerations from those that concern the actual or estimated cost of a fixed amount of work, and may at this time be left aside. But before any thing is said concerning the standard and value of an architect's estimate, it ought to be noted that the making of estimates — of close estimates, we mean, such as are expected when a contract is given — is not a part of an architect's duties at all. It is expected, and fairly, that an architect's experience will enable him to make a good guess of the probable cost of a building, such as the builder who should execute the work might make; and in this case the guess of a competent architect is usually as trustworthy as that of a competent builder, or of anybody else, but in either case it is nothing more than a guess. He will also be able, by comparison of work already done, allowing for the special characteristics of that which is before him, to form a reasonably secure judgment of the cost of a building in proportion to its size, and so by computing its area or cubic contents get at a rough estimate, which will be better than a guess. But to make a close estimate is the business either of the mechanics who are to execute the work, or of a special class of men, building-surveyors. The surveyors are not many in this country, and are chiefly referred to for preliminary estimates of public buildings, where the fact that the persons who provide the money are not those who control the spending of it makes special precaution desirable. But in England and in France the building-surveyor is an important functionary, and is constantly in demand, — in England to estimate the cost of work, and to take out the "quantities" of the various materials employed for the use of the contractors who fur-

nish prices; and in France for measuring the work when it is done, and determining the sums to be paid for it to the mechanic. There are various reasons why it would be worth while to encourage the custom of employing surveyors in this country; and as the usages of building become more definitely established, it is likely that such a custom will grow upon us.

A good deal of misapprehension springs from taking it for granted that the cost of a house is a fixed thing, determinable by a definite standard, like the market price of a bushel of grain or a ton of coal. In reality it is a very indeterminate thing, depending upon the combination of hundreds of elements, some of them very uncertain, and others well defined but varying greatly according to the opportunities of the individual who is to furnish them. It depends on a builder's facilities for buying material, or his luck in it, on the market price at the time that he may have to buy, on the stock that he may have in hand, on his skill in economizing it; it depends also not only on the price of labor, which fluctuates, but on the kind of men he employs, and often on their number, on the organization of his shop, the amount and kind of machinery he uses, and on his skill in the management of work. These things go to make up the cost of the work actually rendered by the builder, and of course must vary with each individual. To the estimate he renders other causes of variation concur, — the personal remuneration and profit he is willing to accept, the degree of faithfulness with which he proposes to do his work, and his caution or boldness as a speculator. To one who thinks of these things it is hardly to be expected that two estimates for the same work should agree; and in fact they seldom do, as we see in competitive bids. The various elements of uncertainty may, it is true, like the risks of an insurance company, when there are enough of them, neutralize each other in the mass, and produce a result tolerably uniform among competitors; but they are likely also to accumulate and produce an exaggerated discrepancy.

But even these are not all the conditions of difference. Dr. Holmes in a famous passage says that into every colloquy between two persons, John and Thomas, there really enter six interlocutors, — the actual John and the actual Thomas, and the ideal conceptions which each holds both of himself and of the other. This ingeniously described complexity is almost matched by that which enters into the procuring of estimates for a building-project. The architect who designs the building has his conception of the amount and quality of material and workmanship which are needed to make it what he would have it; he also has his conception of the habits and character of the builders who are to execute it, of the explanations he must make and the precautions he must use to insure what he wants to have done. On these he bases the description he makes of his design by means of drawings and specifications, with a precision greater or less, but which in the nature of things never can be complete. The mechanic who estimates has his own habits of work, and his idea of what is expected of him by the architect; on some sort of compromise between the two, he founds his interpretation of the directions that are given him, and his estimate. In truth, whenever a house is built, the execution of the work is directed in a great degree by what may be called an unwritten specification, made up of the usages, mechanical habits, and common understandings of the building-trades and the architects. However carefully the written specification is drawn, the larger part of the working directions are necessarily taken from this unwritten specification, and are the subject of merely tacit agreement when an estimate is made. Though the traditions and habits and understandings which constitute it are definite enough to allow of the carrying on of work without great practical inconvenience, they are not definite enough to give different persons identical ideas of how the same piece of work is to be carried out. As all architects know who have directed a variety of mechanics, no two of them will build the same house in just the same way; and in carrying on work, except between those who are personally familiar with each other, there is constant comparison and adjustment of ideas between architect and mechanic, growing out of their different interpretations of the unwritten specification. These differences of interpretation are of course reflected in the estimates that are given for work; and the less rigid and unchanging the habits of the community, the greater will be the discrepancies among the estimates.

In view of all these things it would seem remarkable if estimates for the same work did not vary greatly; and in fact we find that figures of good mechanics are apt to differ by a quarter or a third and even more. Bids sent in in competitions vary by a still wider range. A correspondent has very lately called our attention to some cases in his own practice. A piece of stonework for which detailed drawings were furnished that showed the size of every stone, brought estimates which varied from $23,000 to $51,000. The contract was satisfactorily executed by the lowest bidders. The estimates for a chapel ranged from $15,000 to $22,000; in a contract for ironwork, from $40,000 to $69,000. Looking into the first number at hand of the English *Architect*, we find four successive series of tenders, varying in the first case from £1,495 to £1,097; in the second from £597 to £378; in the third from £849 to £478; in the fourth from £583 to £320.

An estimate, then, is to be regarded as a relative, not an absolute thing. There is very little assurance that two men will give equal bids for the same work, and the knowledge that the men are both trustworthy and capable does not add materially to the assurance; nor is there any security that estimates made by the same man at different times will agree. Still less is it to be expected that any man shall agree to abide by the estimate of another. The estimate of a builder is merely a statement of the price for which he individually, at a definite time, and under special circumstances which he alone can take into account, will do a certain specified work. The estimate of a surveyor, or of an architect if he furnishes one, tells the amount for which in his best judgment he thinks some one can be found to do it. It is valuable as a standard of comparison, more or less approximate, for the estimates furnished by builders in competition, or as a serviceable indication of the cost of work before it is undertaken, or a check upon it when the work is done by the day.

It is not to be wondered at, if when there is so much variation and so much reason for it, in the estimates of men who assume the absolute responsibility of carrying out building-plans, there should be variations between that of an architect and the actual cost of the work. These things ought to make it clear that an architect's judgment of cost cannot be expected to be a standard of precision; nor can any one's else, unless it involves an actual agreement to perform work for a stipulated price; and architects should take care to guard against the acceptance of any such notion. On the other hand, it is essential that the architect should have a good knowledge of the average cost of work; should be fitted by experience and skill to compare the estimates that are set before him, to approximate the cost of projects he brings forward, and in the case of work done by the day, or which requires extra allowance, to judge whether material has been provided at proper market prices and used with economy, whether workmen have been employed to advantage, and have done their tasks with reasonable diligence and care. Beyond the preparation of rough estimates it is better, we think, that the architect should not assume to go, and in practice he very seldom does. When a minute preliminary computation is required, it is better that it should be prepared by a surveyor, who, since he does nothing else, can do this better than anybody else, and working by general knowledge may hit a fair mean between the extreme proposals of bidders; and who will lift this responsibility from the architect, too often charged, in this country at least, with duties which are in our judgment complicated beyond reason.

STUDIES OF INTERIOR DECORATION.

VI.

We are now to consider the completion of the drawing-room shown in the plan on the fourth plate. The principal characteristic of this room is, as we have noted, its excess of length. This is corrected in our scheme by dividing it into two parts, each nearly square, by means of a transverse bay, of which the chimney-piece forms one end, and the door of entrance the other. This bay is continued across the entrance hall where a hall table balances the chimney-piece; the transverse dimension is still further emphasized by the common expedient of opposite mirrors. Of these two divisions of the drawing-room, the front receives light from two large north windows, and the rear from a skylight which forms the bot-

tom of an area for air and light. This skylight at once draws our attention to the ceiling, which thus seems to demand especial study.

In order to accommodate this skylight, the floor over the drawing-room is framed around the opening with a construction of heavier timbers. To emphasize and decorate this construction is a natural expedient, and we find ourselves immediately engaged in considering how these beams may be made visible in the ceiling in such a manner as to form deep panels symmetrically arranged, of which the central and largest shall be glazed. The obvious result is exhibited by the dotted lines on the plan; and as the unity of the room is to be preserved for the sake of its effect of space, the ceiling of the front part is submitted naturally to the same treatment, the apparent beams actually coinciding with the arrangement of the partitions and trimmer-beams in the rooms overhead. But all this show of construction in the ceiling must evidently be subordinated to the two main cross-beams which mark the central transverse bay. These accordingly we make much deeper and more important than the others, and give them a bearing upon pilasters and columns whose function it is to frame in and form a part of the wall features, viz., the chimney-piece and doorway; thus connecting the walls and ceiling, and by a purely architectural treatment enhancing the importance of the transverse bay, which must remain the leading *motif* in the whole composition.

To support the wall ends of the lesser beams upon pilasters or corbels would give them an importance inconsistent with their subordinate character; the pilasters would subdivide our wall spaces in such a manner as to interfere with the hanging of pictures and the placing of furniture, and present an architectural composition quite too formal and monumental for so small a room. We therefore propose to give these minor beams a bearing upon the upper member of a boldly projecting cornice of wood, the detail of which is continued from the main wooden cross-beams, which are thus united with the rest of the room, and escape the peril of isolation.

But the most serious difficulty which we have to encounter in the treatment of this room is to avoid the gloom which must naturally pervade the rear part of it. It is too far from the front windows to receive much benefit from these; and the skylight is insufficient in itself, shedding its light mainly upon the floor, and leaving the upper parts of the walls during the daytime in obscurity. We remedy this obvious defect by borrowing the south light from the large dining-room bay window through an open frieze in the rear partition wall of the drawing-room. The constructional character of this frieze is determined first by the height of the double door which affords communication between the two rooms, and dictates the width of the frieze, and second by the short pilasters which are necessary to enable this partition to perform its functions of support for the floor above. These pilasters divide the frieze into open squares, which should be filled with stained glass in light tones. This device illuminates a partition otherwise gloomy and forbidding, and breaks up the obscurity in which the side walls and the ceiling-panels around the central skylight would otherwise be plunged.

It now remains for us to consider the treatment of the side walls, which are to be brought into harmony with these features of decoration which our conditions have already suggested. The end walls of the central transverse bay are entirely occupied by the woodwork of the chimney-piece and entrance door; and the partition between drawing-room and dining-room is also largely composed of wood. The room is not large enough to allow these masses of woodwork to remain isolated, like pieces of furniture. They must therefore be brought into place by some especial treatment of the side walls, which shall unite them into one composition. To this end we seize on the important *motif* of the glass frieze at the end of the room, and continue its lines and characteristic features on the walls in wood, the panels between the pilasters being occupied with decorative painting, harmonious in subject and color with that on the glass.

Thus black walnut becomes predominant in the room, and it is incumbent upon us so to treat it that it shall not detract from the air of gayety and brightness which should strike one on entering. To this end the wood is finished light without gloss, and the mouldings are broken up into delicate members, one of which in each group is gilded. The screen surfaces of the walls should be roughened or embossed with gold figures upon a buff or amber ground, leaving to the frieze-panels above a contrast of flat and smooth treatment in tints borrowed from the stained glass on a pale tea-green background, each panel being bordered by a gold bead. The lead-work of the stained glass should be gilded. Black should be avoided in such a room, and the chandeliers and sconces should be fire-gilt with polished reflecting surfaces, and bear grouped candles. The panels of the ceiling should be affected by the stained glass in the skylight, and, like it, might have a background of cream-color and brown. An embossed paper with an arabesque tangle of geometrical figures in such tones would so occupy these panels as to bring them into a condition of peculiar harmony with the ceiling beams.

Our aim is to obtain an effect of *singing brightness* in this room, if the expression is allowable, and whenever we apply color, whether in paint, stuffs, or wall-papers, to do so in such a manner as to create not merely a "dressy" background, but to prevent the comparatively dark wood of construction from forming anywhere isolated or strongly marked lines or masses of sober color.

Plate V. suggests wall-hangings of light amber or gold-color, perhaps with pale red figures. This drapery is suspended from brass rods with fire-gilt rings under the black walnut architrave moulding which separates the frieze from the screen-surface of the walls. To enhance the value of this stuff, the wall beneath, where it is occasionally betrayed, might be covered with a paper having embossed gold figures on a light-brown, coffee-colored, or buff background.

To confer warmth and splendor upon the room, the window-curtains should be of red damask with a narrow border at top and a broad border at bottom of amber stuff, divided and at irregular intervals broken by horizontal bands of dark red velvet of various widths, the one separating the broader mass of amber from the red damask field being the most important, and decorated perhaps with rosettes of gold-color or red. This damask-red is to be faintly echoed in the wall-hangings. We would suggest for such curtains, a rich gold cornice and a straight lambrequin, bearing a knotted silk fringe of yellow, with heavy fire-gilt hangers. However eager we may be in our search for novelty, we can find no expedient or device so appropriate as a long mirror occupying the space between the front windows, with a bit of white marble statuary beneath upon a corbelled table. The curtains play upon rods, and are capable of enclosing the windows at night.

To assist in marking the architectural divisions of the room into two parts by a central transverse bay, and to balance our somewhat over-weighted ceiling, we would cover each half with a rug rich in texture and color, and large enough to conceal the greater part of the floor in each case. These rugs should be similar in texture of course, but not necessarily in design. The floor-space between, which belongs to the transverse bay, we will have in polished ash, the bases of the opposite pilasters being connected by broad bands of black walnut. On this space a thick rug may be thrown in front of the fire, which may be furnished with brass fire-dogs and green tile facings; the fireplace itself being lined with silvered metal to reflect the cheerful blaze. If, for the sake of warmth and comfort, it should seem desirable to cover the entire floor with carpeting, we would suggest for such a room, in each half, light gray or green centres with an undistinguishable figure and a rich pile, a border with predominant red like the curtains, and a marked formal figure; this border to be separated from the boundaries of the room by a plain filling of maroon, on which will stand the heavy wall-furniture. The carpet thus becomes a symmetrical rug with no essential part of it so covered as to prevent it from defining the shape of the room. From the point of view of decoration, every room except museums or picture-galleries is more important than its contents; any device therefore which, like this treatment of the carpet, assists in marking and drawing attention to its structural symmetry, or in establishing its unity of design, must be of value. Modern life crowds such a room with furniture, and distracts the attention with pictures, bronzes, marbles, vases, books, and bric-à-brac. In the midst of these distractions, if the room itself fails to asserts itself and to impress upon the mind of the beholder an idea of a symmetrical unity which is decorated and not swamped by such details, there is a fundamental error in the treatment of it. H. V. B.

THE ILLUSTRATIONS.

HOUSE AT NEWTON, MASS. MESSRS. APPLETON AND STEPHENSON, ARCHITECTS.

(10 Pemberton Square, Boston, Mass.)

THIS house, built for George W. Mills, Esq., of Newton, in the fall of 1876, is of wood, with slated roof, and cut shingles in the gable.

STUDIES OF INTERIOR DECORATION. — V.

See preceding article.

PROPOSED PARSONAGE FOR TEMPLE EMANUEL, NEW YORK. MR. HENRY FERNBACH, ARCHITECT.

(346-8 Broadway, New York, N.Y.)

CENTRAL HIGH SCHOOL, CLEVELAND, O. MR. L. T. SCOFIELD, ARCHITECT.

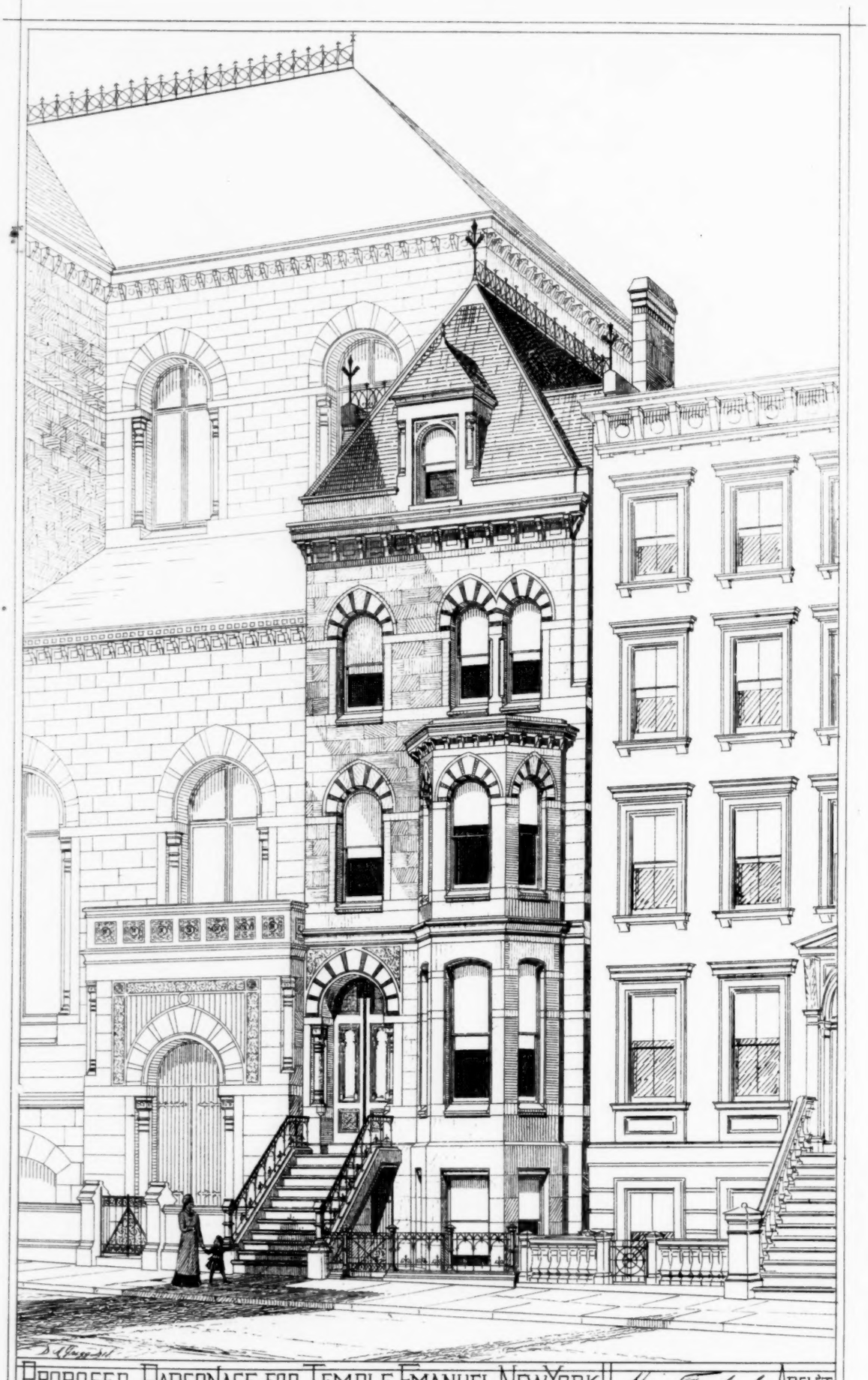
(Case Block, Cleveland, O.)

THE SANITARY CONDITION OF CITY HOUSES.[1] — I.

A SUITABLY built, suitably arranged, and suitably surrounded city house is probably the safest of all human habitations; but a suitably built, suitably arranged, and suitably surrounded city house is probably the rarest of all human constructions.

The country house gets from its isolated position a full bath of sunlight, and a free circulation of pure air, which counterbalance

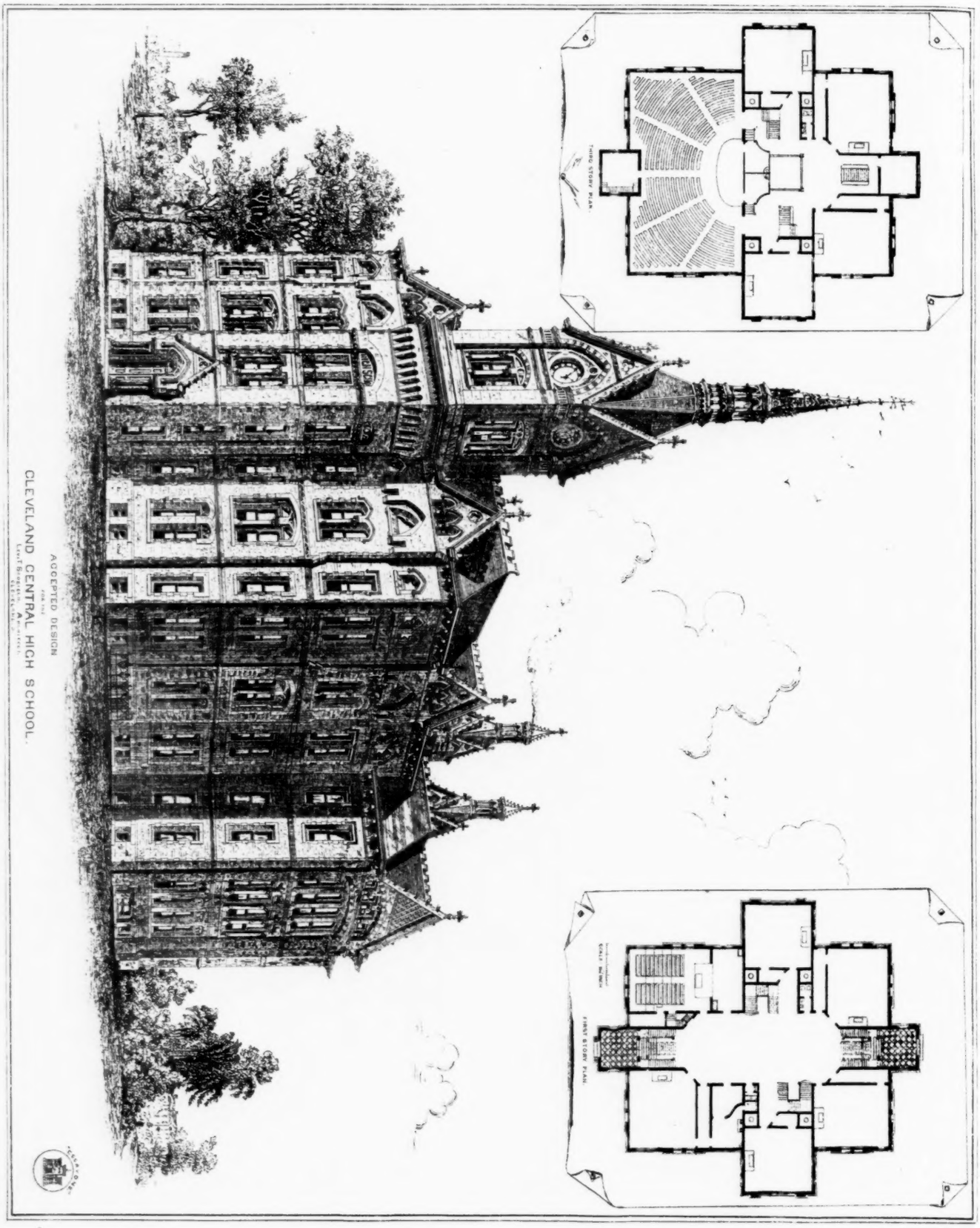
[1] A paper read before the Public Health Association of New York, by George E. Waring, jun.



PROPOSED PARSONAGE FOR TEMPLE EMANUEL, NEW YORK. | Henry Fraebach ARCH'T.

HALL-TYPE

JAMES R. OSGOOD & CO. BOSTON



ACCEPTED DESIGN
FOR THE
CLEVELAND CENTRAL HIGH SCHOOL.

American Architect and Building News, April 21, 1877.

HOUSE AT NEWTON, MASS.

DAN'L APPLETON & H.M. STEPHENSON, Architects, 10 Pemberton Sq. Boston.

H.M. Stephenson del.

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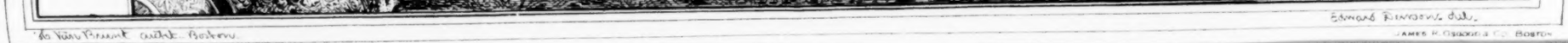
HELIOTYPE



Edward Bierstadt, Publ.

James R. Osgood & Co. Boston

Old York Street with the Old Feather Store

Heliotype

STUDIES OF INTERIOR DECORATION. PLATE V.

Dado
Stained glass
Stairway
Large
Parlor
Furniture
Gold
Red
Ceiling
Frieze
Floor
Rug
Curtains
Mantel
Grate
Tiles
Andirons
Fender
Fire-set
Vase
Screen
Chair
Table
Lamp
Bookcase
Cabinet
Clock
Vases
Bronze
Statue
Pictures
Portfolio
Sofa
Pillows
Ottoman
Piano
Music
Window
Curtains
Shades
Cornice
Portières
Door
Panels
Hangings
Etc.
Etc.

EDWARD FENDOSA del.
JAMES R. OSGOOD & CO. BOSTON

many of its customary defects. But in spite of this, its defects are often pronounced; and deleterious influences arising from soil exhalations and from improper disposal of wastes are often very serious.

A city house with an absolutely impervious sheet of concrete between its cellar and the underlying ground, with impervious cellar walls, with due protection against the rising of damp through its foundation, and with a sufficient circulation of fresh air through its cellar, is practically isolated from any source of danger connected with the ground over which it is built. The earth in front of it is covered with pavement, protected against undue saturation by its ability to shed rain; and the earth behind it is either covered in like manner with close pavement or has its exhalations filtered by the vegetation of its grass-plat, — so that, supposing the whole area in its neighborhood to be protected in like manner by the belongings of other houses, there is little to fear from a malarious condition of the ground. Supposing every house in the neighborhood to be thoroughly well protected in the manner indicated, it might stand over a pestilential swamp without much danger.

It is no argument against this assertion, that such of the houses with which we are familiar as stand over the site of an original pond or swamp are subject to malarial diseases, because the usual manner of construction has left them without the necessary protection against ground exhalations. Probably to a certain extent the freest and best-drained soil acquires in time, from the character of the early occupation of town-sites, a certain degree of fouling which the absence of vegetation, and the crowding of houses so thickly as to exclude sunlight and the circulation of air, allow to become dangerous; and there is frequently an undue amount of ground moisture which affects foundation walls and cellar bottoms as these are usually built. The extent to which the unwholesome influence of the ground air and of moisture from the soil is felt by the occupants of town houses varies, of course, very much according to the original character of the ground. Where the ground is dry and sweet there is little to be apprehended. The ordinary ventilation of the cellar, which comes from careless workmanship, is generally sufficient for safety; but in proportion as the dampness or foulness increases, in just that proportion careless building becomes dangerous.

We know very well, from a difference in salubrity between houses standing on proper sites and houses standing on improper sites, that this influence of soil emanations is serious; probably, so far as the usual slighter malarial ailments are concerned, this soil influence is the most serious with which we have to contend. At the same time the debilitating effect of the exhalations referred to, headache, neuralgia, loss of appetite, intermittent fever, etc., take a far lighter hold upon the popular imagination than do the often fatal diseases which are produced by bad air of another sort. The low condition and consequent susceptibility to infection which the malaria of damp soil produces doubtless aggravate very seriously the dangers arising from the other source; that is to say, persons enfeebled by exposure to malaria would often succumb to infection, when a robust and vigorous person would withstand it. Mankind has been too long accustomed to living in the face of threatening infection, and has been too long educated in the belief that all fatal disorders are to be accepted as the chastening work of God's inscrutable purpose, for us to hope that the average man will at once realize the degree to which his life and health are dependent upon the manner in which he controls the circumstances and conditions of his living. Happily, it is coming to be well recognized that typhoid fever, diphtheria, cerebro-spinal meningitis, and various grave disorders of the bowels, are the crop produced by planting in the system certain floating impurities of the air, whose action is as direct under favorable circumstances as is that of the spores of penicillium in producing a crop of mould when planted on the surface of a damp boot. It is not necessary to discuss here the merits of the "germ" theory. It will hardly be disputed that, whatever we may call the agent of propagation, there is an active agent peculiar to each disease. If we plant cowpox we grow cowpox, if we plant smallpox we grow smallpox, if we plant typhoid we grow typhoid; and so on throughout a long range of diseases whose limit is not yet defined.

Whatever our seed, our crop depends greatly upon the soil in which it is planted. In the case of a vigorous, active person, of strong constitution, and living under wholesome conditions, it falls on sterile ground and is lost, while the same seed sown in the blood of the weakly may produce its fatal crop with certainty and abundance.

It is largely in connection with the influence of the constitution upon liability to infection, — in addition to the minor disorders and discomforts resulting from the rising of swamp malaria and the conditions which produce fever and ague and neuralgia, — that we have to consider the importance of excluding the ground air from the house. It is probably but rarely in city building that there remains in the subsoil such a degree of foulness as to produce typhoid fever and similar diseases; but the instances where a liability to fall before their attack is produced by this sort of unwholesomeness are by no means rare.

The causes of grave infection are precisely the same in the city that they are in the country, and they grow in both cases from improper protection against the emanations from the organic filth which is a necessary product of all human life. In the country it is perhaps less often by the fouling of the air than by the fouling of the water that these diseases are spread. In the city, the water-supply coming from an untainted source, the infection is almost invariably through the medium of the air which we breathe.

We are very far from possessing such accurate knowledge of the conditions of decomposition which favor the multiplication of the germs of disease, or the production of such a condition of the air as produces disease, that it can be demonstrated with scientific certainty that under such and such conditions typhoid fever will be produced, and under such other conditions its production will be impossible. It is a case when we have to accept purely circumstantial evidence.

No analysis of the water-closet drainage which oozed into the Broad Street pump in London demonstrates to us that germs of cholera were communicated to its reservoir; but it *is* known that a water-closet whose outflow reached that well was used by a cholera patient, and that within a week more than five hundred persons scattered over one of the best parts of London, and even as far as Richmond Hill, whither they had fled to escape the plague, but whence they sent to this pump for water, were killed by cholera; the only possible communicating link between the individuals of this scattered multitude being that they drank this water.

We know by frequent observation, that persons living in houses into which poisonous gases are poured through the honeycombing of lead soil-pipes, or the inefficiency of wash-basin traps, are liable to fall sick with diphtheria or typhoid fever. We know that when the defective pipe has been removed and a tight one substituted for it, or when the faulty basin outlet has been closed, such diseases cease. We do not know precisely what condition of the air escaping from the imperfect pipe is necessary to produce the disease. Therefore, all that is said concerning this branch of the sanitary subject is to be taken as the sum of empirical knowledge and as being in so far unscientific that our deductions are not susceptible of clear demonstration.

Let us set aside the question as to the manner in which zymotic diseases originate, and assume that it is demonstrated that they are frequently caused by improper drainage, and by the admission of drain air into living-rooms; taking this as a starting-point we find two most serious questions to be considered: —

1. How shall we keep out of the house the influences arising from the ground beneath it and beside it, which tend to produce a low condition of health, and to create a susceptibility to zymotic poisoning?

2. How shall we protect ourselves against such zymotic infection as comes to us from within or without the house as a result of improper methods for the public and private disposal of the wastes of the body and of the domestic economy?

Concerning the injurious ground air, it may be assumed, however serious the difficulty, that it may be nearly or entirely remedied by a thorough draining of the soil below the level of the house cellar, by making the cellar-floor, the foundation-walls, and the pavement and walls of basement areas, hermetically tight; and by providing for the complete, even if very slight, ventilation, of the cellar itself. This is recognized on all hands, at least so far as the cellar wall and foundation are concerned, as being necessary to the best building. In time it will come to be absolutely required by public authorities who have the regulation of the way which builders' work must be carried out.

That the importance of this complete separation of the house from the ground under and about it is by no means popularly regarded as essential, our daily observation proves. Those contractor-built rows of cheap houses, built by the block and sawed off in sixteen-foot lengths to suit the demand, which have covered so many hundred acres of this city, are built almost invariably without the least regard to the influence of the soil below them upon the health of those who are to live within them. That convenient and taking compound American adjective "first-class," which makes every degree of badness acceptable to the ambitious mind, has its requirements fully satisfied by a certain conventional expenditure about the front and entrance door of the building, by high ceilings, and in these later days by a judicious touch of "Queen Anne" joinery and paper-hanging. The house may be the veriest rattle-trap that ever trembled over the site of a recent swine-yard; there may be the freest racing-ground for rats from garret to cellar; it may have twenty openings in its drainage system, which are separated from the street sewer only by ineffective and often inoperative water-seal traps; its foundation walls may leak, and its cellar may often hold stagnant water. With all these defects and with all the "scamping" of its work, which are evident to the practised eye, if its experienced builder has had the shrewdness to give it that touch of cheap finish which makes it "first-class," he may count on a price that will make his operation a good one. Should he be able to add the taking recommendation that the house has been built "entirely by days' work," it matters little that it was the days' work of apprentices and bunglers.

As a rule, one of the almost universal defects of New York houses is strictly fundamental. The proportion of houses of the costlier sort that would bear a rigid inspection as to the efficiency of their cellar-floors, foundation-walls, and areas, would be ex-

tremely small. The gravity of this drawback is sufficiently understood by all who know the prevalent ailing condition of the women and children whom these houses shelter.

Much more serious, when measured by the death and pain that it produces, though hardly more so with regard to its effect on the health and efficiency of the people, is the question of disposing of the household wastes.

Men living in widely scattered communities find it easy, in their rude way, to get rid of the organic refuse that they produce, without serious injury to their health. As houses are made tighter and are more gathered together, the trouble increases with regard both to the waste of each household as reacting upon its own members, and to the influences that it may have upon the members of other households. When men gather together into closer built towns, they bring with them at first the institutions of the village, — the vault in the back yard, the leaching cesspool, and the slop-gutters. The method of life implied by the use of these systems are accompanied by defects of construction and ventilation which give them a high death-rate. It may be questioned whether, with a public supply of good water, there is any great amount of actual poisoning occasioned by such disposal of filth. Indeed, the statistics of health in Philadelphia show an exceptionally small death-rate in those districts where the slop-water of the house is carried away through surface channels, and where the gutters at the sides of the streets are almost constantly running with soap-suds and kitchen sink waste. The untidiness suggested by this custom makes it one of the first efforts of the dainty and fastidious to hide such matters out of sight by passing them away in covered channels.

CORRESPONDENCE.

THE "BEAURIVAGE" APARTMENT HOUSE. — THE DOUGLAS MONUMENT. — ACANTHUS PLANTS.

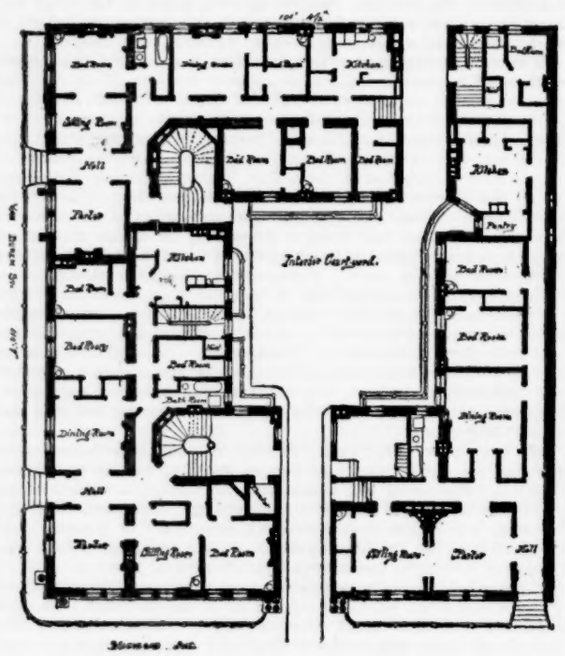
CHICAGO.

THE apartment house system — or as the people here are determined to call them, "French flats" — can no longer be considered an experiment in this city. There are numerous buildings thus designated; but most of them are only a superior variety of the "tenement house," having neither back stairs, coal-lifts, nor door-keepers, but in other respects being well arranged for small families where the household work is done without servants. Two houses of a superior kind were built on the "North Side" about eighteen months since. One belongs to Mrs. Brown, and was designed by Mr. Bauer; the other belongs to Mr. Wheeler, and was designed by Mr. Addison. Both are well arranged, but are not large. Neither one has a passenger-elevator, and there is no need for one. They have thus far been a financial success, and all the flats are occupied.

The new "Beaurivage," owned by J. K. and A. Fisher, and designed by James R. Willett, architect, is the first of the apartment houses such as are generally denominated "first-class," and of which there are already so many in Boston and New York. It has now been finished and occupied eleven months. The building is one of the prominent architectural features of Chicago, standing on the north-west corner of Michigan Avenue and Van Buren Street, fronting Lake Michigan and in full view of all the trains which enter the city by four roads. It has a front of 104 feet on the the avenue and 110 feet on the street, and is five stories high in addition to the basement. The exterior is of red brick and buff sandstone from the St. Geneviève quarries in Missouri, and the cornice and parapet are of Chicago terra-cotta. The three oriel windows extending from the second story to the roof indicate the position of the parlors in each apartment. There are three apartments on each floor, making fifteen in all. The general shape of the building is a hollow square, with a court forty feet square in the centre, and three exterior sides exposed to light — the third side fronting on an alley. This arrangement affords excellent opportunity for lighting. The apartments are so arranged that the principal rooms of each suite front on the streets. In this respect the house is one of the best ever erected.

The main entrance is on the centre of the Michigan Avenue front through a *porte-cochère* which passes directly through the building to the court. The back entrance is through another *porte-cochère* on the alley; but the front entrance as far as the court can be used for all purposes at the discretion of the janitor. There are two main stairways and two back stairways, the latter with freight-lifts delivering goods on the landings. All are approached from the court, except one of the main stairways which is entered from the *porte-cochère*. A water elevator, worked by direct pressure, is in conjunction with this stairway. On each landing of this stairway are two front entrances to apartments. The other stairway has one entrance on each landing. In order to make the elevator available in connection with this stairway, it is connected on each story with the other stairway by means of an open gallery supported on iron brackets. As the rooms passed by this gallery are for minor purposes, the window-sills are set up to a level with the eye of a person passing. This is a very ingenious feature of the arrangement. The flats are very large compared with those generally seen in New York, and consist of from nine to eleven rooms each. The house is most profusely supplied with plumbing; besides the usual appliances of kitchens, laundries, bath-rooms, and water-closets, every bedroom has a set basin supplied with hot and cold water. All the hot water for the building is supplied from boilers in the basement heated by coils of brass pipe. Each apartment has an ash-shute and garbage-shute, and a steam dry-closet furnished with Hawley's drying-machines. All the public and private halls are heated by steam by direct radiation. The steam work is on a very extensive scale, and taken altogether the steam and water works involve such a great expense for maintenance and repairs as to seriously impair the value of the whole investment. But the steam apparatus serves to furnish a very complete and thorough though necessarily expensive system of ventilation. The sanitary appliances are of the most perfect sort. All drain-pipes are of cast iron, and every drain-pipe of whatsoever size or nature is carried directly through the roof.

A peculiar feature of this house is the decidedly French arrangement of the ground floor and entrances. In this respect it differs



essentially from those which have been erected in Eastern cities, in which the *porte-cochère* has been abolished and the double entrance substituted. By returning to the foreign type the Chicago building is no improvement on the American system. The porter's lodge is opposite to the stairway and very inconvenient. He cannot see those who come in until they have passed the outer gate; and there is always a chance that among those unacquainted with this style of building there may be some who will turn away from what they suppose to be a stable entrance only. This is a fact, and it is not uncommon for the occupants of first-floor flats which have outside entrances to be annoyed by callers for the upper part of the building. The court is too small to be useful for carriages; there are no stables in the rear, as is often the case in Paris houses; and the *porte-cochère*, though a convenient means of ventilating the court in summer, is in winter only a conduit for howling winds and drifting snow. Altogether it is something which architects had better avoid in the future.

The Beaurivage is too large an affair to be an immediate success in a city like this. It is ahead of the times; but good management and a few improvements will not fail to result in a good financial showing for the owners in a few years. The rents are now what appear to be high for this city, ranging from $700 to $1,100, and only two apartments are now vacant. The building cost about $90,000, on land that is said to have cost $30,000. What it costs to run the house cannot be stated with accuracy, but it is too much to make the building a paying investment at the above rates.

An earnest movement is now on foot to have the Douglas Monument moved and finished. What there is of it now stands on the lake shore at the foot of Douglas Place (Thirty-fifth Street). It is on a lot formerly belonging to Douglas's estate, and I believe part of that given by him to the Chicago University. The site is entirely unsuitable for a monument, being in an unfrequented place and surrounded by dwelling-houses. The crypt in which are the remains of Douglas has been built with the four detached buttresses at the angles. Nothing has ever been done to the proposed colossal statue. The whole thing has been disgracefully neglected ever since the great Douglas celebration when his mortal remains were deposited in the tomb.

Several sites have been suggested, and the Commissioners of the South Parks have offered to give it ground-room on any suitable

place within the parks and boulevards. They have lately sent one of their number to Springfield to confer with the Legislature now in session. He is authorized to propose that the Douglas Monument be placed at the head of Drexel Boulevard, whose name will then be changed to Douglas Boulevard; also that a monument to Lincoln be built at the head of Grand Boulevard, whose name is to be changed to Lincoln Boulevard.

Mr. Leonard W. Volk, the sculptor and designer of the monument, has made an excellent model for the statue, which has been described in these letters. It will be unfortunate, in case the monument is moved and finished, if the design is not placed in the hands of a capable architect to remodel. Such as it is, it is not worthy of a better location than it has. It is said that a legislative committee, which recently visited the present and proposed sites, will recommend that the ground it is now on be sold, and an appropriation be made for its completion.

I recently had an opportunity to see several varieties of the acanthus plant in the new botanical gardens in South Park. They were raised from the seed by Prof. H. H. Babcock. One of them will soon be in full bloom, and I will then endeavor to procure a drawing of it for your illustrated pages.

THE THIRD DISTRICT COURT HOUSE OF NEW YORK.

[From the Sunday *World*.]

The Third District Court House, jail, and bell-tower, which have just been occupied for the first time, are noteworthy on many accounts. They are especially noteworthy because they have afforded the first opportunity any architect in New York has used to design a building, of which the scheme was so complicated, on architectural principles. Our public buildings have heretofore fallen into bad hands, and have accordingly consisted of symmetrical façades designed without reference to what was behind them. Commercial buildings mostly consist either of a single room, as in a bank which occupies the whole of its building, or of a number of rooms devoted to like purposes, and calling for no variety of architectural expression. The purposes of the new buildings are various and highly specialized, though perhaps not more so than those of the old "New Court House" in City Hall Square. In that building, however, no attempt whatever was made to express them. The distinction of the buildings now opened in Sixth Avenue is that the design is distinctly an expression of the purposes of the building, that it varies as they vary, and that, the ground plan being established by the exigencies of the buildings alone, the architecture is rigidly developed from the ground plan.

Whatever style it is attempted in, it is evident that what is attempted in the Third District Court House is a much harder thing to do than to set up in front of a New York court-house and jail the front of a mediæval town-hall or a Palladian palace. The difference essentially is that in the former case architecture is treated as a living art, and in the latter as dead. The architect of the Sixth Avenue buildings, by committing himself to a sound basis of design, was forced really to "design" a new building. With so intricate and so peculiar a programme he could not compile it. Details of course he could find in abundance, but details would not serve him, nor even pieces of elevations, which perhaps he might have found. The whole resulting from the combination of these multifarious parts must be original. In such an attempt even a moderate success is a creditable feat, while to say of such a work that it is better in perspective than in elevation, and better in mass than in detail, is to assign its author a very high rank as an architect. This may truly be said of the architect of the new buildings. He has made a whole which is better and greater than any of its parts.

All the parts, though their chief value is as parts of the whole, are in themselves worthy of study; for the architect has given careful study to them. Before the jail was built, the fault most commonly found with the court-house was the relative shortness of the ridge-line of the roof, which was exaggerated by the metal ventilator at the end of it. It is one evidence of the study given the design as a whole, that since the jail has been done that fault has been much mitigated. It will be still further relieved when the market which forms part of the general design comes to be built, and the bulk of its great cupola is interposed between the court-house and the jail in the southern view, from which the defect is chiefly noticeable. It remains, however, and will remain, a drawback, though the architect's difficulties are obvious, and it is not obvious how he could have overcome them. It seems as if a hip-roof over the court-house front, instead of the gable which now completes it, might have helped the difficulty by making the length of the ridge a matter of less moment; and it would have had the advantage of recalling the sky-line of the jail in the lower roof of the court-house, while the loss of the gable would not have been great. The pinnacles which flank this gable and receive the thrust of the coping seem much too important for their function, and are mainly valuable on account of the carved corbels from which they rise. The gable of the guard-house facing the rear of the court-house is more naturally treated, and an elaboration of the same treatment applied to the front would have been an improvement. The Sixth Avenue front is in general a rich, careful, and effective composition; but the effect of it is somewhat marred by the manner in which the masses of stone forming the two gables are placed above the brickwork and entirely detached from it. The design of these gables as originally published, in which the brickwork and masonry were carried up together, and in which the coat of arms in the principal gable was much less conspicuous, has not been improved in the design executed. We decline to believe that the architect is responsible for the insertion of the balls of polished granite, which are the single offensive detail in the whole building. The openings, except the arch of the principal porch, would have been more effective if they had been deeper, or so moulded as to seem deeper. In parts, the front has a somewhat flat and shallow look, which is due chiefly to this cause. The drawbacks we have mentioned, except the granite balls, would almost be merits in our ordinary street architecture, and they are conspicuous here only because the front is in the main so good. The detail, much of it richly carved in stone, is well designed and well executed; and if this front were all of the building to be seen, it would be a valuable addition to our short list of artistic buildings.

But upon the whole the Sixth Avenue front, leaving out the tower, good as it is compared to almost any thing we have, is the least successful aspect of the building. It is distinctly less satisfactory than the flank on West Tenth Street. This is curious, considering that the Tenth Street front is much less elaborate and costly and very much harder to do. This does not look like scholastic architecture. It is perfectly free and highly picturesque. It is composed of so many and so various parts that great skill was needed to prevent it from becoming an uneasy jumble. On the other hand, it is altogether quiet and dignified. The slight "batter" of the granite foundation wall gives and does not exaggerate the sense of stability which is essential to the sense of repose. The brick wall of the jail-yard, rising at one point into the gable of the station-house, is a broad band of quiet color, which greatly enhances the effect of the jail which rises behind it, and the architect has shown his sense of the value of it to his composition by leaving it quite plain. The jail itself is imposing in the mass and duly severe and simple in detail; and the connection between the jail and the court-house, one of the most difficult points in the whole design, is managed with extreme art. The gable of which we have already spoken, which faces on this court, might almost, if we were to pick out details, be called the most successful detail in the building, and it is even better in its place and connection than in itself. The filling of the tympana throughout this front in decorative brickwork is skilfully done, and kept in its due subordination as a detail. All this work has a peculiar and striking charm. Not the least of its attractions is the material of the jail and its wall, a carefully chosen Hudson River brick of a better color and character, for this purpose at least, than the smooth, rather glaring and brand-new-looking pressed brick of which the court-house is built.

The tower is a noble object, and would be if it were set up by itself, but gains immeasurably as a point of departure and a point of convergence for the lines of the façades. The staircase turret, built up against it to provide a separate entrance for the belfry, is a source of additional picturesqueness. The great staircase which fills its lower stages is one of the noblest features of the interior. The transition from the cylindrical body to the square belfry, employed so as to show the clock-faces the belfry is meant to receive, is probably not the arrangement the architect would have chosen if he had been designing a purely monumental tower. Fergusson remarking that the natural transition is from the square to the octagon, and from that to the round, says that "the reverse arrangement is one which almost no art could render tolerable." Art enough has been expended on this tower to render it not only tolerable but beautiful, and to give it not only a plainly civic, as opposed to an ecclesiastical, but a highly individual character; and the transition from the round to the square, by corbelling in brick, is one of the most beautiful as well as one of the most characteristic features of it.

JOURNEY OF AN ARCHITECT IN THE NORTH-WEST OF EUROPE.[1]—IX.

ROMAN CATHOLIC CHURCH AT HAMBURG.

The porter at our hotel, who is a Roman Catholic, was intrusted to receive from his foreign co-religionists subscriptions towards the construction of a church, the designs for which he showed to us. We gave our mite to this useful functionary, and borrowed from him some drawings, which may perhaps interest the reader.

The ground-plan (fig. 146) consists of a porch leading to the nave, which is bordered by side-aisles, and terminated by a square chancel. The wide bays of the nave occupy the width of two of those of the side-aisles. All the vaults, both high and low, have bays at right angles to each other. Their angles are without mouldings, and they are intended to be covered with paintings. The pillars are square, and the edges are chamfered as far as a console, which forms a corbel for the spring of the arch. Small columns,

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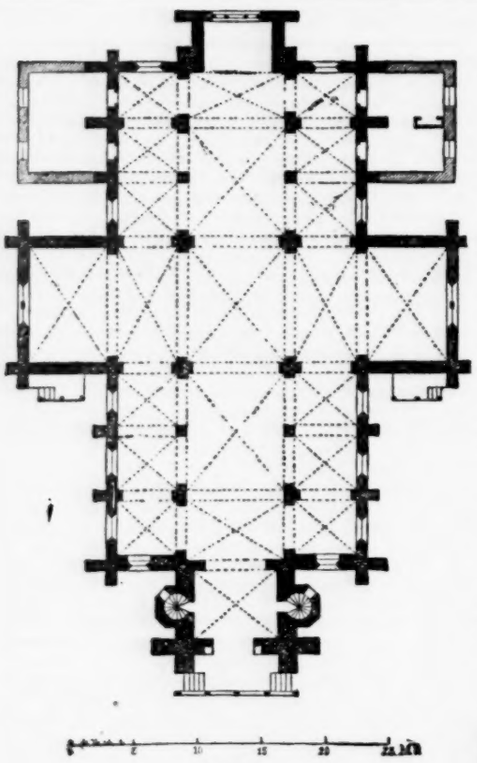

Fig. 146.

giving additional strength to those of the transept, and placed against each side, support the wall arches. Large isolated windows give light to the narrow bays. In the wider bays of the transept, instead of a single window, a triple one has been made. These windows come down to the string-course above the arches of the side-aisles, but their upper part alone opens to the outer air. The lower portion gives light to a gallery, a kind of triforium, covered by the roofs of the side-aisles. Arches placed below these roofs, the timber-work of which is supported by them, sustain the thrust of the vaults of the nave.

The steeple is over the main entrance, and forms the great feature of the principal façade (fig. 148). It is divided into three stories, each treated in a different manner according to the purpose for which it is intended; first the porch, then the window belonging to the organ gallery, and above this the long narrow windows of the belfry, over which is the base of the wooden spire. Triple windows resembling those of the nave give light to the transept; and there is a rose-window in the east wall of the chancel at the end of the building.

The materials to be employed are brick and white stone for the masonry, tiles for the roofs, and wood for the framework. Iron is not yet so much used in Germany as in France, and it is but seldom employed.

The person who planned the Catholic church at Hamburg, having a considerable space to cover, determined to give it a vaulted roof; it was in fact scarcely possible to cover a large surface by a ceiling. Metal is not well adapted for decoration under these circumstances, unless it is concealed by a covering of plastering, — a combination in every respect objectionable. Having therefore adopted a vaulted roof, the architect made the general plan and its details to correspond with it. The bays of the vault, as we have already said, are at right angles to each other, and are built of bricks without projecting ribs; as the angles are strengthened by a double brick, it is only necessary to make the large triangular bays about four and one-third inches in thickness. The spring of the vaults of the nave comes so low, and that of the side-aisles is, on the other hand, so high, that it allows flying buttresses to be formed in the roof of the aisles, supported by external buttresses, and intended to take the thrust of the vaults of the nave. This arrangement gives the side bays a somewhat heavy and clumsy appearance, but has the advantage of being truly economical in allowing the height of the nave to be diminished without rendering it dark, since it can be lighted by windows immediately above the roofs of the side-aisles.

The danger to be feared in such a case is lest the thrust of one of the smaller arches forming the division of the side-aisles should overturn the isolated pillar in the centre of the larger bay; but to obviate this difficulty it is easy to place over the springer of this arch an arrangement which would diffuse the thrust, throwing it not entirely on the column, but partly on the triangular mass of brickwork formed by the meeting of the two arches, which supports the solid part above the sill of the window; this would afford the necessary resistance. This system of vaulting appears therefore very simple and reasonable as to the points of support. Their disposition of the arches is not the result of caprice, but rendered necessary by the part which they have to play. The examination of the plan shows that their dimensions have been carefully adjusted so as to enable them to sustain the weight to be laid upon them; and these dimensions are increased at the top of the pillars by means of corbelling, intended to give greater surface to the imposts of the wall arches.

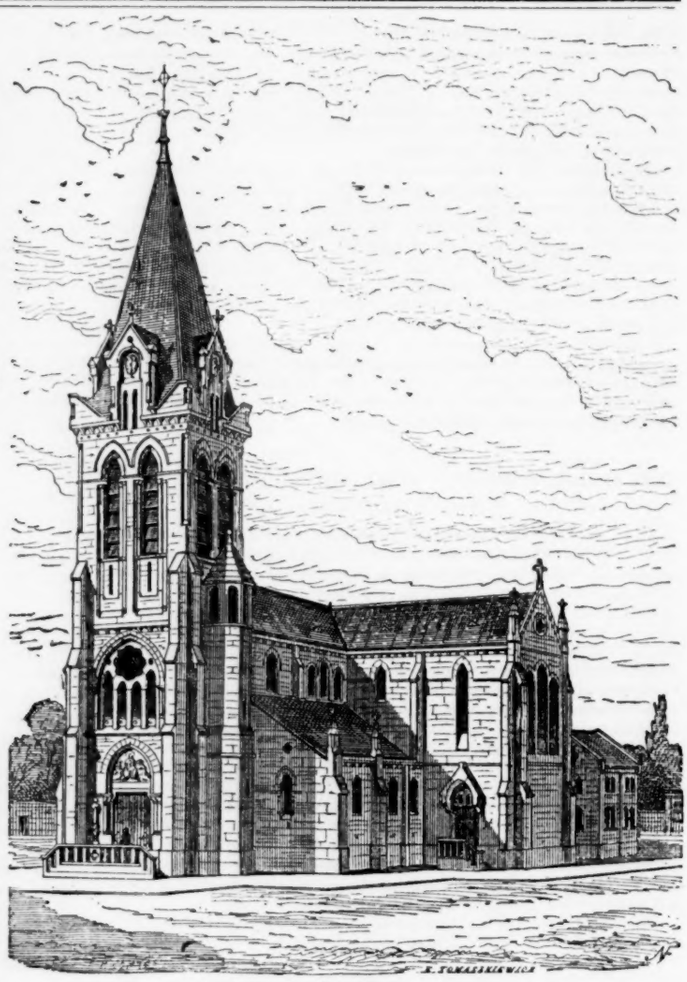

Fig. 148.

NOTES AND CLIPPINGS.

The Boston Post-Office. — The Supervising Architect of the Treasury has sent to the District Attorney in Boston the final order with reference to the purchase of the land for the site for the new Post-Office. Upon receipt of this, District Attorney Sanger will receive the title of the land for the United States, and the money will be paid over to the parties from whom the purchases are made.

Aggressive Strikers. — On the 10th inst. Edward Kilpatrick, a builder, complained at the Fifty-seventh Street Police Court, New York, that a number of his workingmen employed on a block of new buildings in Seventy-fifth Street were on a strike, and that they were intimidating those who had not joined them. One of the strikers was arrested as a warning to the others, and was committed for trial in default of $300 bail.

Bricklayers' Wages. — The Brooklyn Bricklayers' Union gave notice on Saturday last to their members, that the lowest rate of wages will be $2.50 a day. Any member who is known to be working for less will be expelled from the Union.

An Injured Bronze Statue. — It has been discovered that the right hind leg of the bronze horse on which Gen. Washington's effigy is mounted, on the Capitol Square, Richmond, is cracked for a length of twelve or more inches. The weight of the statue and horse is probably ten tons, and rests on one hind and one fore leg: the injured limb is the one poised. It is supposed that the crack was caused by the freezing, during the past winter, of water which by some means percolated into the casting.